



US005977873A

United States Patent [19]

[11] Patent Number: 5,977,873

Woods

[45] Date of Patent: Nov. 2, 1999

[54] ALARM SWITCH

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[21] Appl. No.: 09/034,670

[22] Filed: Mar. 4, 1998

[51] Int. Cl.⁶ G08B 13/08[52] U.S. Cl. 340/547; 340/545.1; 335/205;
335/207[58] Field of Search 340/542, 545.1,
340/545.2, 545.3, 545.4, 545.5, 547, 551;
335/205, 207

[56] References Cited

U.S. PATENT DOCUMENTS

1,051,962	2/1913	Lundquist	116/86
1,192,893	8/1916	Harvey	116/88
1,868,923	7/1932	Semon	116/88
3,516,036	6/1970	Lea	335/207
3,535,664	10/1970	Staar	335/153
3,630,168	12/1971	Fladlay	116/74
3,650,347	3/1972	Campos	180/282
3,763,484	10/1973	Byers	340/669
3,816,680	6/1974	Suzuki et al.	200/65.51
3,842,377	10/1974	Barndt	335/207
4,042,796	8/1977	Zink	200/61.45 R
4,057,773	11/1977	Cohen	335/205
4,062,314	12/1977	Allen et al.	116/85
4,168,410	9/1979	Norris	200/61.45 M
4,275,391	6/1981	Okamura	340/571
4,293,860	10/1981	Iwata	343/715
4,326,196	4/1982	Plevy	340/545.5
4,336,518	6/1982	Holce et al.	335/205
4,450,326	5/1984	Ledger	200/61.45 M
4,456,897	6/1984	Holce et al.	335/205
4,553,134	11/1985	Holt	340/546
4,567,846	2/1986	Kurtz	116/86

4,628,160	12/1986	Canevari	200/61.45 R
4,656,458	4/1987	Iwata	340/669
4,733,324	3/1988	George	361/118
4,788,517	11/1988	Meister	335/205
4,982,058	1/1991	Schroeder et al.	200/61.62
5,192,839	3/1993	Imade et al.	200/61.45 R
5,248,861	9/1993	Kato et al.	200/61.45 M
5,248,959	9/1993	Chern	340/601
5,332,992	7/1994	Woods	340/547
5,530,428	6/1996	Woods	340/547
5,543,767	8/1996	Elenbaas	335/205
5,673,021	9/1997	Woods	340/547
5,867,082	2/1999	Van Zeeland	335/205
5,880,659	3/1999	Woods	335/207

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[57] ABSTRACT

A magnetic switch apparatus (10) detects relative movement between first (12) and second (14) members and defeats attempted external magnetic manipulation of the apparatus. A rod-shaped, first switch element (20) is positioned transverse to and centrally aligned with a convex, second switch element (22) and spaced therefrom. A ring-shaped first magnet (26) is positioned about the first switch element (20) and spaced from the second element (22) in order to pull a ferromagnetic body (24) into a switch-open position out of contact with the second switch element (22) with these components mounted to the first member (12). A second magnet (18) mounted to the second member (14) is positioned and magnetically sufficient to pull the body (24) into a switch-closed position in contact with both of the switch elements (20, 22) when the members (12, 14) are in an adjacent position.

15 Claims, 1 Drawing Sheet

